

Terminals Pty Ltd

Melbourne Bulk Liquid Storage Terminal

Environmental Improvement Plan

May 2002

Terminals Pty Ltd

ABN 87 000 348 407

70-78 Mackenzie Road

West Melbourne Vic 3003

Telephone: (03) 9689 2344 Facsimile: (03) 9689 7349 Email: ghorman@terminalspl.com.au**© Terminals Pty Ltd 2002**

This document is and shall remain the property of Terminals Pty Ltd. The document may only be used for the purposes for which it was commissioned and in accordance with the Terms of Engagement for the commission. Unauthorised use of this document in any form whatsoever is prohibited.

Contents

1. Introduction	1
1.1 Terminals Pty Ltd.....	1
2. Existing Facility – Recent Improvements	3
3. Improvement Description	5
3.1 Overview	5
3.2 Broad Description of the Works – Stage 1	5
3.2.1 Introduction.....	5
3.2.2 Replacement Vapour Control System	6
3.2.3 Acrylate Tankage.....	6
3.2.4 Tank Under Floor Liner and Tell Tale Drain.....	6
3.2.5 Acrylate Exchange area and Plant C General Chemicals	7
3.2.6 Tank Integrity.....	7
3.2.7 Waste Minimisation - Tank Cleaning	7
3.2.8 Groundwater Protection	7
3.2.9 Drainage.....	7
3.2.10 Training	8
3.2.11 Sediment & Litter Traps	8
3.2.12 Stormwater Management Report	8
3.2.13 Shipping Emergency Shutdown	8
3.2.14 Sewer Connection	9
3.2.15 Adequacy of Existing Bunds.....	9
3.2.16 Combustion System in Heat Recovery	9
3.2.17 Phenol Liquor	9
3.3 Broad Description of the Works - Stage 2	10
3.4 Broad Description of the Works - Stage 3	10
3.4.1 Clay Liner	11
3.5 Other Issues	11
3.5.1 Community Consultation.....	11
3.5.2 Landscape Management.....	11
3.5.3 Emergency Procedures	11
3.5.4 Health, Safety & Environment Management.....	12
3.5.5 Security	12
3.5.6 Noise.....	12
4. Management and Operations	13
4.1 Philosophy and Procedures	13
4.2 Current Operations	13
4.2.1 Product Stewardship.....	13
4.2.2 Quality Assurance.....	13
4.2.3 Responsible Care	14
4.2.4 Maintenance.....	14
4.3 Health, Safety and Environment Management.....	15
4.3.1 Overview	15
4.3.2 Introduction.....	15
4.3.3 Safety, Health and Environment Management.....	16

4.3.4	<i>Safety Management Systems</i>	16
4.3.5	<i>Environment Management Plan</i>	16
4.3.6	<i>Safety Performance</i>	16
4.4	Manuals	17

Appendices

1. Summary of Targets

Environmental Policy



terminals pty. ltd.

a member of the Burns Philp Group

70-78 mackenzie road, west melbourne vic 3003

Phone (03) 9689 2344
Fax (03) 9689 7349

ENVIRONMENT POLICY

It is the policy of Terminals to operate our facilities in a manner that will protect the environment.

This policy is founded on:-

- ★ Identifying and managing the environmental risks associated with our business.
- ★ Providing training and promoting environmental awareness and responsibility amongst all employees.
- ★ The efficient use of resources and minimisation of waste or loss.
- ★ Periodic environmental assessments of our facilities, from which ongoing improvement programs will be implemented.
- ★ Compliance with regulatory requirements is the minimum acceptable level of performance.



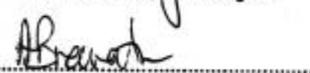
Director



National Safety & Environment Manager



Victorian State Manager



NSW State Manager



S.A. State Manager



ISO 9002 Certificate



CERTIFICATE OF APPROVAL

This is to certify that the Quality Management System of:

***Terminals Pty Ltd
Australia***

*has been approved by Lloyd's Register Quality Assurance
to the following Quality Management System Standards:*

AS/NZS ISO 9002: 1994

The Quality Management System is applicable to:

***Storage, handling and repackaging of bulk non-hazardous and
hazardous liquid chemicals, oils, tallowes and liquified gas.***

*This certificate is valid only in association with the certificate schedule bearing the same
number on which the locations applicable to this approval are listed.*

*Approval
Certificate No: MEQ 0402898/A*

Original Approval: 28 February 1994

Current Certificate: 14 November 2001

Certificate Expiry: 30 September 2002

Deanne Worthington
Issued by: LRQA Melbourne

JAS-ANZ



This approval is carried out in accordance with the LRQA assessment and certification procedures and monitored by LRQA.
The use of the JAS-ANZ Accreditation Mark indicates Accreditation by the Joint Accreditation System of Australia and New Zealand in respect of those activities covered by the
Accreditation Certificate Number 31250992UH
March 2002



CERTIFICATE SCHEDULE

*Terminals Pty Ltd
Australia*

Locations

*Port Botany,
New South Wales*

*Footscray,
Victoria*

*Geelong,
Victoria*

*Osborne,
South Australia*

Activities

Storage, handling and repackaging of bulk non-hazardous and hazardous liquid chemicals, oils and tallows.

Storage, handling and repackaging of bulk non-hazardous and hazardous liquid chemicals, oils and tallows.

Storage and handling of bulk non-hazardous and hazardous liquid chemicals and liquified gas.

Storage, handling and repackaging of bulk non-hazardous and hazardous liquid chemicals, oils and tallows.

*Approval
Certificate No: MEQ 0402898/A*

Original Approval: 28 February 1994

Current Certificate: 14 November 2001

Certificate Expiry: 30 September 2002

Page 1 of 1

JAS-ANZ



This approval is carried out in accordance with the LRQA assessment and certification procedures and controlled by LRQA.
The use of the JAS-ANZ Accreditation Mark indicates Accreditation by the Joint Accreditation System of Australia and New Zealand in respect of those activities covered by the Accreditation Certificate Number 51250992LH
Issue no 5.0

ISO 14001 Certificate



CERTIFICATE OF APPROVAL

This is to certify that the Environmental Management System of:

***Terminals Pty Ltd
Australia***

*has been approved by Lloyd's Register Quality Assurance
to the following Environmental Management System Standards:*

AS/NZS ISO 14001:1996

The Environmental Management System is applicable to:

***Storage, handling and repackaging of bulk non-hazardous and
hazardous liquid chemicals, oils, tallows and liquified gas.***

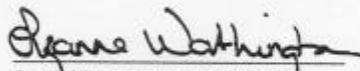
*This certificate is valid only in association with the certificate schedule bearing the same
number on which the locations applicable to this approval are listed.*

*Approval
Certificate No: MEQ 0402898/B*

Original Approval: 14 October 1998

Current Certificate: 14 November 2001

Certificate Expiry: 30 September 2002


Issued by: LRQA Melbourne

JAS-ANZ



This approval is carried out in accordance with the LRQA assessment and certification procedures and monitored by LRQA.
The use of the JAS-ANZ Accreditation Mark indicates Accreditation by the Joint Accreditation System of Australia and New Zealand in respect of those activities covered by the
Accreditation Certificate Number E1520196AAM
Mark no 58



CERTIFICATE SCHEDULE

*Terminals Pty Ltd
Australia*

Locations

*Port Botany,
New South Wales*

*Footscray,
Victoria*

*Geelong,
Victoria*

Activities

Storage, handling and repackaging of bulk non-hazardous and hazardous liquid chemicals, oils and tallows.

Storage, handling and repackaging of bulk non-hazardous and hazardous liquid chemicals, oils and tallows.

Storage and handling of bulk non-hazardous and hazardous liquid chemicals and liquified gas.

*Approval
Certificate No: MEQ 0402898/B*

Original Approval: 14 October 1998

Current Certificate: 14 November 2001

Certificate Expiry: 30 September 2002

Page 1 of 1

JAS-ANZ



This approval is carried out in accordance with the LRQA assessment and certification procedures and executed by LRQA.
The use of the JAS-ANZ Accreditation Mark indicates Accreditation by the Joint Accreditation System of Australia and New Zealand in respect of those activities covered by the Accreditation Certificate Number 07520136AM
Mark rev 5.0

Overview

1. Introduction

As required by the Environmental Protection Authority (“EPA”) in clauses 2.27 & 2.28 of Terminals EPA licence, the following submission outlines the proposed Environmental Improvement Plan (EIP) by Terminals of its Coode Island bulk liquid storage facility.

Terminals has secured long term tenure for its sites west of Mackenzie Road which will remain in ongoing bulk liquid service. These sites will be comprehensively upgraded throughout the next decade.

Terminals sites east of Mackenzie Road will be closed, demolished and the land remediated by July 2004.

Terminals is committed to the continual improvement of its remaining Coode Island facility through the long term upgrading of the sites:

- Upgrading the environmental systems (air, soil and groundwater);
- Upgrading the existing storage and handling equipment;
- Removing redundant equipment and pipelines;
- Segregating storm and waste water streams;
- Protection of ground water.

1.1 Terminals Pty Ltd

Terminals is a wholly owned subsidiary of Burns, Philp & Company Ltd. It provides terminalling services to its clients at four operating locations throughout Australia. These sites are located at Coode Island in Melbourne, Corio in Geelong, Port Botany in Sydney and Osborne in South Australia.

An associated company, Bulk Storage Terminals Limited, is also the leading terminal operator in New Zealand with facilities in Auckland, Wellington, New Plymouth and Mount Maunganui.

In addition to operating its own sites, Terminals has extensive experience in managing and operating cryogenic liquefied petroleum gas storing facilities on behalf of Orica at Port Botany, adjacent to Terminals Bulk Liquids Storage Facilities.

Total capacity owned and operated by Terminals in Australia is 164000 m³. Terminals' commitment to the industry it serves began in Victoria in 1961 with the construction of its first facility on Coode Island. Since then it has provided continuous services to its clients in a professional manner.

In the past nine years, Terminals has improved its operating practices and procedures to rival world standards. This has been principally through the recruitment of storage and process engineering expertise from the chemical and oil industry, and the use of highly specialised consultants in risk management, loss prevention and occupational health and safety. An extensive capital works program has been undertaken on all sites to address the issues of the impending major hazards facilities legislation and addresses the lessons learned from the fire in the Site A Coode Island facility in 1991.

2. Existing Facility – Recent Improvements

The Coode Island Bulk Liquids Storage Facility consists of two terminals commonly referred to as Plant B (54-62 Mackenzie Road) and Plant C (70-78 Mackenzie Road). The terminals were initially developed as two independently owned and operated facilities. Site C was acquired by Terminals from Powell Duffryn in 1992 and the operations of the facilities integrated under a common management and operating workforce. The combined facility comprises a total of 122 tanks generally divided into four areas, two on the east side of Mackenzie Road and two on the west side. Approximately 80 tanks are used for the storage of flammable liquids. These are dispersed across the four operational areas of both terminals.

While the facilities will be upgraded, capital expenditure in excess of \$20 million has been made since the fire in 1991. Features of this expenditure include:

- A fire system which exceeds regulatory requirements;
- Nitrogen blanketing to all flammable liquids (where suitable);
- Sealed loading of toxic products (TDI, PO, ACN, PHENOL);
- CCTV control security access systems;
- Dedicated tanks for high throughput products or the more hazardous products;
- Redeveloped Benzene handling facilities;
- Ground water control systems;
- Upgraded spill control systems.

In the past 2 years, major interim upgrading of the Vapour Emission Control (VEC) systems to improve odour performance has been carried out. This investment has totalled in excess of \$800,000 and has included:

- New cooling towers and heat exchangers;
- Improved outlet monitoring systems;
- More frequent carbon changes;
- Installation of scrubbers to treat all Acrylate vapours at the truck filling areas;
- Installation of pressure devices to control tank pressures during ship unloading & pigging for Acrylates and Benzene;
- Sealed truck loading of Ethyl Acrylate;
- Ship vapour returns for export of some chemicals;

- Solid piped utility ducting;
- Many upgraded operating practices to minimise odour emissions including ship loading rate reduction.

More recently, further measures have been implemented as follows:

- Monthly carbon change of the Plant B VECS;
- Installation of Gas Chromatograph monitoring equipment to the Plant B VECS;
- Removal of Ethyl Acrylate from both sites until new VEC equipment is installed;
- Consolidation of all other Acrylates to Plant B to remove all Acrylate load from the Plant C VEC located adjacent the P&O boundary;
- A commitment to install new VECS equipment.

The upgrading of the sites has been and will continue to be complex as it is a hazardous facility with ongoing commitments to customers. Despite the difficulties, it is intended to continue upgrading the facility. This upgrading will address outstanding issues to ensure regulatory compliance with EPA and VWA (MHF) requirements as well as improving the operation and integrity of the facility throughout the life of the lease.

3. Improvement Description

3.1 Overview

With the discontinuation of the existing eastern sites, Terminals' operations will be consolidated to the west sites. Terminals will continue to handle the same chemicals it currently handles with the exception of Benzene, Crude Benzene and Propylene Oxide from January 2004* to enable demolition and remediation of those facilities by January 2005*.

Terminals plans a staged multi million dollar investment over the period to 31 December 2012. Staging is necessary to:

- Minimise the safety risks in performing major works within an operating major hazards facility ie. the scale of the work must be kept manageable.
- Minimise the economic impact on the existing client base and contribute to their commercial competitiveness.
- Avoid disruption to existing business;

The upgrade has been prioritised to address the key safety and environmental considerations in the first stage.

The facilities and operations will comply with the requirements of the Environment Protection Authority (EPA), Victorian WorkCover Authority (VWA) and the Metropolitan Fire and Emergency Services Board (MFESB) as well as ISO Standards 9002 and 14001.

3.2 Broad Description of the Works – Stage 1

To be completed by 31 December 2004.

Refer to Appendix 1 for the completion target dates.

3.2.1 Introduction

The Stage 1 development provides for the installation of new vapour emission control facilities that will replace the current under capacity carbon systems. This is the most pressing issue on the terminal sites. Tanks in Acrylate service will be upgraded along with their piping systems that will reduce fugitive emissions and minimise the generation of waste. Improvements to the sites' waste water collection system will be made to reduce wastes.

* To be confirmed by Government direction to MPC

3.2.2 Replacement Vapour Control System

This is the provision of 2 combustors ducted to collect vapours from tanks, truckfilling, drum filling, exchange areas and to receive return vapours from ship during product export as follows. It will be constructed to EPA, VWA and Office of Gas Safety requirements. Initially it will be commissioned to handle the current Benzene vapour loads then soon after extended to the existing acrylate storages. It will then be extended to the remaining tank farm for those products that require vapour controls. Features of the system are:

- 2 gas fired combustion units;
- Ducting throughout the plant;
- Pressure sensors on all flammable/hazardous tanks connected to the VEC system;
- Tell tale seals on all emergency relief vents;
- Vapour return to ship of Acrylonitrile.

3.2.3 Acrylate Tankage

The 11 acrylate storage facilities will be upgraded to enable the control and capture of all vapour emissions. Features include:

- Upgraded tanks to retain a higher pressure;
- Under tank liner for leak detection;
- New docklines and hard piped exchange areas;
- Removal of redundant docklines;
- Sealed truck loading systems;
- Pressure sensors with remote readout with low and high pressure alarms;
- Cast steel pumps with double mechanical seals.

3.2.4 Tank Under Floor Liner and Tell Tale Drain

In addition to checks (non destructive testing of almost 100% of the floor) over the next 2 years, raising the tanks sequence and inspections underneath, an impermeable base underneath the tank bases will be installed as the tanks are raised. This will provide improved groundwater protection and tank leak detection that if very slow may not otherwise be detected.

3.2.5 Acrylate Exchange area and Plant C General Chemicals

The exchange area will be upgraded so that it is hard piped, and that the lines can be completely cleaned by pigging past all connection/disconnection points to prevent minor spillage and odours. The design will include VECS connection to ensure disconnection points will be swept to VECS eliminating fugitive emissions. VECS connection will include knock out pots with shutdown and alarms to ensure liquid cannot enter the system.

3.2.6 Tank Integrity

A study is to be carried out by July 1 into the integrity of the tanks that are to remain on Coode Island.

Further to this, all flammable/hazardous tanks will be inspected over the next few years with all Flam/Haz tanks inspected with non destructive testing carried out including floor scans covering more than 80% of the floor according to an upgraded inspection specification than used previously.

The outcomes of this will be addressed prior to being returned to service and the information will be used in prioritising the tank refurbishment program.

3.2.7 Waste Minimisation - Tank Cleaning

The refurbishment of the tanks will also facilitate the installation of internal sumps and stripping pipework that will, on emptying a tank, reduce the residual product from, on average, 1000ltrs to approximately 75ltrs as per Terminals' Port Botany Plant.

This will reduce waste produced in cleaning the tank and less vapours generated through the new combustion systems. It will also allow the recirculation of cleaning water and detergent reducing waste generated per tank clean from 25,000 ltrs per tank to 5,000 ltrs per tank on average.

3.2.8 Groundwater Protection

Soil contamination issues will be addressed on the western sites including extending the sparge curtain that was recently installed (subject to the effectiveness of the technology to be confirmed by pilot trials).

3.2.9 Drainage

Other upgrading to bund drainage systems, sewer connections and general improvements will also occur including the provision of sediment and litter traps prior to the discharge of water to the Maribyrnong River.

The drainage systems that handle stormwater runoff and process waste (eg truck fill spill controls) are currently common. It is proposed to separate the systems so that process waste can be collected separately therefore reduce the amount of waste disposed off site or by sewer. Stormwater from 'non' process areas will be discharged to the river after the first 10 minutes is collected in a first flush pit. The first flushings would be directed to sewer (when available).

3.2.10 Training

Competency assessments are being rewritten for the Melbourne sites under the new MHF regulations to ensure operators are conversant with operating procedures and safety practices. The new assessments will also include environmental practices and principles where applicable.

Operating procedures, training assessments will also be prepared for the new VEC system.

As improvements to plant in general are brought 'on line', operating procedures will have been modified and training carried out to ensure all improvements are properly and safely utilised and that the improved environmental outcomes are achieved.

3.2.11 Sediment & Litter Traps

On all outlets to the river, sediment and litter traps will be fitted where they currently are not. The design requirements of these will form part of the Stormwater Management Report (see below).

3.2.12 Stormwater Management Report

The current licence requires Terminals to submit a report to the EPA by July 1 2002 including:

- (a) The results of an audit of existing stormwater monitoring and management measures in place to ensure that only uncontaminated stormwater is discharged to the Maribyrnong River from the premises;
- (b) Recommendations for improvements in stormwater monitoring and management on the premises;
- (c) An estimate of the annual amount of contaminated stormwater and sewage generated on the premises;
- (d) An investigation of the viability of discharging contaminated stormwater and sewage generated on the premises to trade waste.

The report required by condition 3.33 must be verified and signed by an EPA appointed Environment Auditor (Industrial Facilities).

This will also look at the design of the sediment and litter traps refer EPA Licence.

3.2.13 Shipping Emergency Shutdown

During the first stage, a system will be installed to raise alarms to all site personnel (on site and at the wharf) of critical equipment malfunction (fire system or VECS), tank high level alarms or tank high pressure alarms. This will facilitate the safe but rapid closure of all ship and truck filling. Automated truck bottom loading system where fitted (ongoing improvements) will cease automatically.

Note: Automatic line valves in docklines will not be fitted as the closure against a ship at full pumping could cause a pipeline flange or hose rupture. Refer Safety Case HAZID reviews for the risk considerations undertaken.

3.2.14 Sewer Connection

Funds have been allocated by the State Government for Coode Island to be sewerred. The work has been delayed pending a dispute between the MPC and City West Water on the ongoing maintenance responsibilities.

Once the sewer is in place, Terminals will:

- Connect all sewage waste sources to the sewer;
- Negotiate a trade waste agreement for low level containment waste;
- Discharge first flush stormwater to the sewer.

3.2.15 Adequacy of Existing Bunds

The capacity and separation distances of the current bunds will be assessed against EPA publication 347 'Building Guidelines' ie adequate capacity (capacity of the largest tank plus 10% of the second largest tank plus 150mm freeboard), separation from tanks to the edge of the bund in relation to AS1940. A report will be provided to the EPA.

3.2.16 Combustion System in Heat Recovery

The site currently utilises steam boilers for the generation of heat for products that require heating such as Tallow and to regenerate the carbon beds.

On commissioning of the new VEC system to the whole site, a combustor usage profile will be established by recording the time the units are operating and at what levels. Approximately 6 month usage data will be required.

From this, a feasibility study will be carried out on the possibility of heating waste for tank heating.

3.2.17 Phenol Liquor

If phenol is required to be stored on the site in the long term, consideration will be given to the possibility of recovering the phenol and caustic solution from the scrubber rather than disposal.

Considerations will include:

- Availability of a suitable facility to receive the elements from the waste;
- Volumes and costs (currently phenol liquor of 4000L (avg) is changed annually).

3.3 Broad Description of the Works - Stage 2

(MPC lease requirement to be completed by 31 December 2008)

The Stage 2 works provide for the renovation no less than 50% of the other existing flammable/hazardous liquid storages and associated systems. Work will include, as required:

- Tank renovations including foundations where required;
- Under tank leak detection;
- Establishment of a hard piped exchange area at Plant B;
- New piping systems, pumps and sealed truck loading systems;
- Removal of redundant pipelines;
- High pressure alarms.

Other work required will include improvements to:

- Stormwater facilities;
- Tank heating systems required for heating and product handling for viscous products;
- Upgraded electrical systems;
- Improved lighting;
- Backup generator for critical equipment including VECS;
- Emergency stand alone lighting to buildings and new exchange areas.

3.4 Broad Description of the Works - Stage 3

(MPC lease requirement to be completed by 31 December 2012)

Stage 3 works include the renovation of all the remaining existing flammable and hazardous storage not renovated in Stage 2 plus the installation of an impermeable liner to the tank bunds and bund walls. This latter element can only occur after the civil works associated with the tank and piping upgrades have been completed.

3.4.1 Clay Liner

The refurbishment of the facility will require the installation of new pipelines, supports and foundation as well as other extensive civil works. Once this work is substantially complete, Terminals will install a 10mm thick clay liner that will meet the EPA bunding guidelines – publication 347. The liner will be covered by a 200mm (min) thickness of cover.

3.5 Other Issues

3.5.1 Community Consultation

Terminals is a key participant in the community consultative arrangements that have been made regarding the operation of the facility. It is anticipated that the involvement of the community will continue into the future. Progress towards goals, targets and objectives will be shared regularly with the community. The community will be given visibility and access to verify progress themselves as they see fit. This will ensure that the local community is kept abreast of developments on the site along with enhanced safety measures and environmental controls. Ongoing consultation with the community will also provide opportunity for positive input as well as providing a forum to raise concerns.

3.5.2 Landscape Management

The existing landscaped areas will be retained as far as practical on the west side sites. New fences will be black PVC, coated or painted enamel chainwire with black coated posts.

3.5.3 Emergency Procedures

Notwithstanding EPA related matters, the Metropolitan Fire and Emergency Services Board (MFESB) is the principal emergency response group likely to be involved in any events that occur on site. Considering the nature of the materials stored and managed within the site it is likely that the MFESB would attend any significant event that occurred.

The MFESB will be consulted at all relevant stages during the design of the upgrades to ensure that all active and passive fire systems, product handling and tank storage control systems are addressed. Terminals would also ensure that the revised tank storage layout accords with MFESB requirements thereby ensuring that they have access to up to date information in the event of any incidents on site.

Emergency procedures will be upgraded as part of the MHF reviews.

The significant improvement in emergency procedures will be realised by the provision of new and revised product handling systems and equipment as the upgrades are implemented. This will ensure that the inherent safety of the terminal is improved reducing the likelihood of any incident.

3.5.4 Health, Safety & Environment Management

The existing health, safety and environment management plans will also encompass the upgraded facility. The new features and systems incorporated into the terminal would be implemented and incorporated into the systems that already exist.

Terminals currently has ISO 14001 Environmental management systems accreditation for their Melbourne, Geelong and Botany facilities.

All work (including Hot Work and Confined Space Work) will be in accordance with the new Safety Management Manual recently introduced (superseded Hazard Management Manual) to conform with MHF requirements.

3.5.5 Security

With the adoption of the new terminal arrangement, the overall number of operational areas is reduced from four to two. This reduction, combined with vehicular traffic accessing Terminals' Bulk Liquid Storage Facility and other terminal operators on only the west side of Mackenzie Road and the reduced level of pedestrian traffic, will allow improved security arrangements to be made.

The existing perimeter fencing and closed security gates with automatic remote control gates with operator access have been adopted with the use of CCTV surveillance systems. It is proposed that this would continue.

Wharf security would remain as is, under the control of the MPC.

3.5.6 Noise

The existing terminal operations are not generally considered to be a significant noise source, particularly when the surrounding and unrelated heavy industrial uses are taken into consideration. The predominant noise sources within the current facility are generated primarily by truck movements within the site and operating equipment such as pumps, fans, etc.

It is anticipated that there will be no overall increase in noise generation as a result of the proposed upgrade. It is noted that even with a change to 24 hour operations, the nature of the surrounding industrial uses and the location of the site being remote from any sensitive uses, it is unlikely that noise emission would be an issue. Therefore no reduction targets are proposed.

Noting the above comments, any noise considerations would be incorporated into a detailed design able to comply with relevant Environment Protection Authority, (EPA), State Environment Protection Policy (SEPP), N-1 and N-2 noise levels which apply to such facilities operating over a 24 hour period. EPA consent would need to be achieved via the relevant Works Approval so as to confirm compliance with the existing 1994 Licence levels.

A noise survey will be conducted and compared against previous survey or completion of combustion system installation.

4. Management and Operations

4.1 Philosophy and Procedures

Terminals is a major operator within the Australian Petrochemical Industry, providing storage and handling services for bulk liquids, chemicals, petroleum, solvents, vegetable oils, tallow and liquefied gas. The current philosophy of providing a high standard, cost effective service to clients with a commitment to health, safety and environment issues will be applied to the upgraded Coode Island facility.

4.2 Current Operations

4.2.1 *Product Stewardship*

Terminals regards one of its prime contractual roles is to ensure the quality and quantity of our clients products is maintained as it passes through the terminal.

To this end the redeveloped terminal will be appropriately engineered to operate as a multi-product import/export terminal.

4.2.2 *Quality Assurance*

Quality certification to ISO 9002 through Lloyd's Register for all of Terminals facilities has been achieved. In addition, ISO 14001 accreditation for the environmental management systems has been achieved at Melbourne, Botany and Geelong. It acknowledges a high standard of consistent operations and safety in supplying our services. The following key safety and environment areas are included:

- Occupational Health and Safety;
- Operating Procedures;
- Training;
- Modification Form changes;
- Incident Reporting and Investigation;
- Contractor and Driver Inductions;
- Licence/Regulations/Standards Control;
- Maintenance;
- Contract Review;
- Purchasing.

4.2.3 Responsible Care

Terminals has been a long standing associate member of the Plastics and Chemical Industry Association (PACIA). As such, it has been an active participant in the Responsible Care program and has supported this industry movement for improved performance through this program. Terminals' Melbourne facilities have achieved 100% compliance with the responsible care guidelines.

Terminals also supported the Community Right to Know Code of Practice, by active participation in the chemical industry "Open Door" program. Safety and operating statistics have been provided to PACIA for the preparation of annual industry statistics on safety performance.

To ensure the long term maintenance of high standards, that the community is adequately informed about the facility and its operations and to provide an opportunity for the community to express any concerns, Terminals will continue to support the Coode Island Consultative Committee. Terminals takes a significant role in the committee and provides all relevant operating statistics and details of incidents occurrences, injuries etc. as requested.

4.2.4 Maintenance

Terminals operators are multi-skilled. Consequently they undertake routine maintenance inspections to meet the following objectives:

- Regulatory requirements;
- Achieve maximum serviceable life from the company's assets;
- Maintain an acceptable level of customer service through the minimisation of plant and equipment down-time;
- Maintain plant and equipment in such a way that the risk of personnel injury is minimised;
- Standardise the maintenance system throughout the company's terminals;
- Develop and maintain a reliable system for the recording of maintenance work.

These maintenance procedures and checks are documented and form part of the ISO9002 Quality System.

4.3 Health, Safety and Environment Management

4.3.1 Overview

Health, safety and environmental (HS&E) performance is Terminals' highest priority.

Terminals are committed to ensuring the health and safety of its staff and the community, to preserve the environment and to protect property and materials stored.

Performance in these areas is achieved through a comprehensive and systematic management system, called Process Safety Management, to ensure barriers are in place, in use, demonstrable and effective to prevent significant incidents, and minimise consequences from the inherent hazards of the business.

The following four sections provide an introduction to this subject and then cover the HS&E management systems current performance and trends and achievement steps over the last five years.

4.3.2 Introduction

Terminals is the largest independent bulk liquid chemical storage and handling company in Australia, providing product handling and storage services for over 90 companies in as many different chemicals for many diverse industries.

From a HS&E perspective, the range of chemicals handled differs greatly and involves the following types of hazards:

- Flammable;
- Poisonous;
- Toxic;
- Known and suspected human carcinogens;
- Corrosive;
- Polymerisable;
- Combustible;
- Oxidising agent;
- Highly volatile.

4.3.3 Safety, Health and Environment Management

It is the corporate objective of Terminals to be the acknowledged leader within its industry in the quality of services provided and in its safety, health and environmental performance.

In order to operate safely and effectively, the company has a defined management structure, which implements policies set by senior management. These policies are detailed in comprehensive management systems that comprise manuals, programs, procedures and plans on activities such as Occupational Health and Safety, Operations, Maintenance, Engineering, Training, Quality, Safety Audits, Environmental Management and Emergency Procedures.

4.3.4 Safety Management Systems

Process Safety Management is a systematic approach to the identification, understanding, assessment and ultimately control of process hazards. The major focus is to minimise, if not prevent, incidents and accidents.

The system is based on the "Technical Management of Chemical Process Safety" developed by the centre for Chemical Process Safety of the American Institute of Chemical Engineers.

4.3.5 Environment Management Plan

An Environment Management Manual (EMM) has been developed for Terminals' facilities in Australia. Terminals has ISO 14001 accreditation for its Melbourne, Geelong and Port Botany facilities. Its purpose is to cover the requirements for environmental protection, and management of the operations of Terminals in relation to routine on-site and off-site activities. This plan will continue to be applied to the redeveloped facility and will include the setting of emission and environmental goals and the ongoing audibility of the site environmental and operating systems.

4.3.6 Safety Performance

The "continued improvement" philosophy is entrenched in the Process Safety Management Model. It is essential to Terminals' business success to monitor parameters for performance, set objectives then develop and implement plans to achieve nominated targets.

Action plans developed from incidents and audits are monitored to completion using a computer based management follow up system.

Terminals encourages investigation of near misses as well as minor and significant incidents. This "root cause" analysis ensures the greater number of lessons can be learned and improvements made. Severity and frequency of incidents are reduced using this method.

An active Occupational Hygiene and Health Program is in place. Annual medical checks are conducted on all operating personnel. Noise, and on older sites asbestos assessments, have been independently carried out by external professional occupational hygienists, and all recommendations have been implemented.

4.4 Manuals

The following Terminals' manuals are available for review.

- Quality Systems Manual
- Safety Management Manual
- Quality Manual
- Training Manual
- Emergency Procedures Plan
- Environmental Management Manual
- Occupational Health and Safety Manual
- Operations Procedures Manual
- Maintenance Inspections and Procedures Manual
- Engineering Procedures and Policies Manual.

Appendix 1

Summary of Targets

SUMMARY OF TARGETS 2002 – 2004

Element	Target Objective	Due
VEC System	<ul style="list-style-type: none"> - Operational and receiving benzene vapours - Acrylate vapours Plant B - Install pressure sensors/remote alarms to all Flam/Haz tanks - Fit Tell tale seals to ERV's on all Flam/Haz Tanks - Vapour return of ACN vapours to ship - Extend to remainder of site (to be on the system) 	4 th QTR 2002 4 th QTR 2002 2 nd QTR 2003 2 nd QTR 2003 2 nd QTR 2003 2 nd QTR 2003
Acrylate Tankage	<ul style="list-style-type: none"> - Refurbish and fit HDPE or impermeable liners under floors - Install new piping systems - New exchange area Plant C - Install sealed truck loading system 	3 rd QTR 2003 “ “ “ 4 th QTR 2003 “ “ “
Six General Flam Tanks	<ul style="list-style-type: none"> - Refurbish & fit HDPE liners - Commence pipe systems, truck loading system for these tanks 	4 th QTR 2004
Tank Integrity	<ul style="list-style-type: none"> - Carry out investigation (Refer licence) - Conduct External Inspections on all flam/Haz Tanks - Internally check all tanks (flam/haz) with 100% radiograph of floors 	3 rd QTR 2002 3 rd QTR 2002 2 nd QTR 2004
Internal Tank Pipework to Minimise Waste	<ul style="list-style-type: none"> - Install to 11 Acrylate tanks & 6 general flammable tanks reducing waste from 1000L to <75L 	4 th QTR 2004
Groundwater Protection	<ul style="list-style-type: none"> - Extend sparge curtain to prevent off site passage of contaminated groundwater 	2 nd QTR 2003
Segregate Site Stormwater and Operational Area	<ul style="list-style-type: none"> - Plant B & C driveway / truckfill / drumfill & pump slabs - First Flush Pits (subject to sewer availability) 	3 rd QTR 2003 4 th QTR 2004
Training Assessments	<ul style="list-style-type: none"> - Update for revised procedures 	4 th QTR 2003

SUMMARY OF TARGETS Cont'd
2002 – 2004

Element	Target Objective	Due
Sediment Sump to Bunds & Traps	- Install to Plant B & C bund outlets	2 nd QTR 2003
Stormwater Management Report	- Conduct a Stormwater management study and report as per licence	July 2002
Shipping Emergency Shutdown	- Design system to alert the site - Implement	3 rd QTR 2002 1 st QTR 2003
Sewer Connection	- Site Sewerage Sources & Stormwater First Flush	TBA
Bund Report	- Refer licence re adequacy of existing bunds	4 th QTR 2002
Combustion Heat Recovery Feasibility Study	- Assess the feasibility of recovery heat for tank heating	3 rd QTR 2003
Phenol Liquor	- Assess the feasibility to recover the elements	2 nd QTR 2003

SUMMARY OF FUTURE TARGETS

Element	Target Objective	Due MPC lease requirement
Upgrade Flammable HAZ Tanks	Upgrade 50% of remaining flammable and HAZ tanks including: <ul style="list-style-type: none"> - HDPE lines - New pipework / fittings - Sealed truck loading systems - Hard piped exchange areas etc 	4 th QTR 2008
Improve Terminal Lighting	<ul style="list-style-type: none"> - Carry out lighting survey - Implement Stage 1 - Implement Stage 2 	1 st QTR 2005 3 rd QTR 2003 3rd QTR 2006
Back Up Generator	<ul style="list-style-type: none"> - Install for critical Equipment - VECs - Emergency Stand Alone lighting - Ops rooms/Exchange areas 	1 st QTR 2005 2 nd QTR 2006
Clay Bund Liner	<ul style="list-style-type: none"> - Install to 30% of tank farm (Flam/Haz) 	4 th QTR 2006
Upgrade Flammable/HAZ Tanks	<ul style="list-style-type: none"> - As above – remaining tanks 	4th QTR 2012
Clay Liner	<ul style="list-style-type: none"> - Install to tank farm (Flammable/Hazardous) 	4 th QTR 2012